



Navy JMPS Technical Interchange Meeting 15-17 June 04

UPC Brief's





UPC's



- **AARGM**
- **AV-8B**
- **CUPC
(JSOW/JDAM)**
- **E-2C**
- **EA-6B**
- **ETIRMS**
- **F/A-18**
- **HARM**
- **JSF**
- **MH-60**
- **SLAM-ER**
- **TAMMAC**
- **V-22**



E-2C UPC

JMPS TIM
15-17 June 04

Mike Hale





Current E-2C UPC Processes



- **Small Team (2 dvlprs 1/2 Lead/Test)**
 - **Minimal Funding**
- **Informal Development Process**
 - **No Big Schedule driver**
 - **Early User involvement in rqmts/design**
 - **Requirements High Level but not well defined**
 - **Informal Peer/Design reviews**
 - **Minimal Documentation**
 - **Cut off new functionality at UPCRR**
 - **Controlled late changes & kept to minimum**
- **Test Process - More formal**
 - **DRs captured in Excel**
 - **Test Data/Metrics**
 - **Test Report/Cert Ltr done once**
- **Not Process driven but Ready to go**



New Process Impacts?



- **Sys Eng - MPE approach**
 - Minimal Impact and way to go forward
 - Concern over current end game and control of changes in MPE.
- **Requirements**
 - Near Term - impacts current efforts
 - Future - May require more resources but good idea to do by MPE
- **Consolidated DR & MPE DRB**
 - May require more time for DRBs
 - Reporting of UPC DRs - no impact
- **Test**
 - Minimal impact
 - Need to better define MPE test process and responsibilities
- **UAG/HMI**
 - Minor impact, incorporate changes in next version
- **Metrics - Minimal impact, already providing most**



E-2C Process Issues



- **E-2C not staffed for added processes, WGs, etc.**
- **Funding - E-2C Mission Planning un-funded program**
- **Contract - IDIQ, Task Orders**
- **Integrate MPE with new FW when it makes sense (not every time a new one comes out)**
 - **May cause problems when go to Client/Server or CVIC MPE**
- **Need better control on any MPE changes in end game (ITCRR-OTRR)**
- **Need better involvement of UAG in design/review process so not making major changes at end**
- **Need to figure out how/when to incorporate HMI Style Guide changes**



E-2C Process Issues



- **MPE versioning??**
 - S/W contents (FW & UPCs)
 - H/W environment
 - Install
 - COTS
- **Training**
 - Developer did not produce training package
 - OT and Initial
- **Customer support for UPC**
 - Need to provide 24/7 support??



AV-8B UPC Development Status

**Tony Walls
Project Engineer
AV-8B JSSA, NAWCWD, China Lake**

17 June 2004



Current Status



- **Provided AV-8B UPC Functional Requirements Document (FRD) to PMA-281**
- **Updated Schedule (Roadmap to OTRR) provided to PMA-281 June 3, 2004**
- **Delivered AV-8B UPC 1.0.1.5 June 9, 2004**
 - Mini V&V testing underway at AV-8B Labs
 - Concurrent IBAR testing as new FW & CUPC drops come out
 - Supporting BI #3 at IBAR next week with Fleet pilots
- **Mission Binder Capability Implemented**
 - Testing underway with Build 1.0.1.5
- **Awaiting CUPC engineering build 1.0.1 when CUPC FQT starts**



AV-8B UPC FPM ISSUES



1. There is no TAV-8B 408 engine FPM

- Last Tybrin FPM model completion was in 2002
- Last Published NATOPS update with TAV-8B 408 was in March, 2003
- Workaround is to use the existing AV-8B 408 FPM and modify it with the proper drag index
- Purchase (~200K) of Wings Data Base Flight Performance Program can fix this

2. RHOV and other engine parameters are too restrictive

- JMPS is limiting RHOV values to -5.0 to +5.0 when the jet can use values up to +7.0 that NATOPS specifies
- Imposed due to the few representative NATOPS charts that are published
- Purchase (~200K) of Wings Data Base Flight Performance Program can fix this



AV-8B UPC FPM ISSUES



3. JMPS AV-8B FPMs are limiting the aircraft to no more than 31,000 lbs gross weight

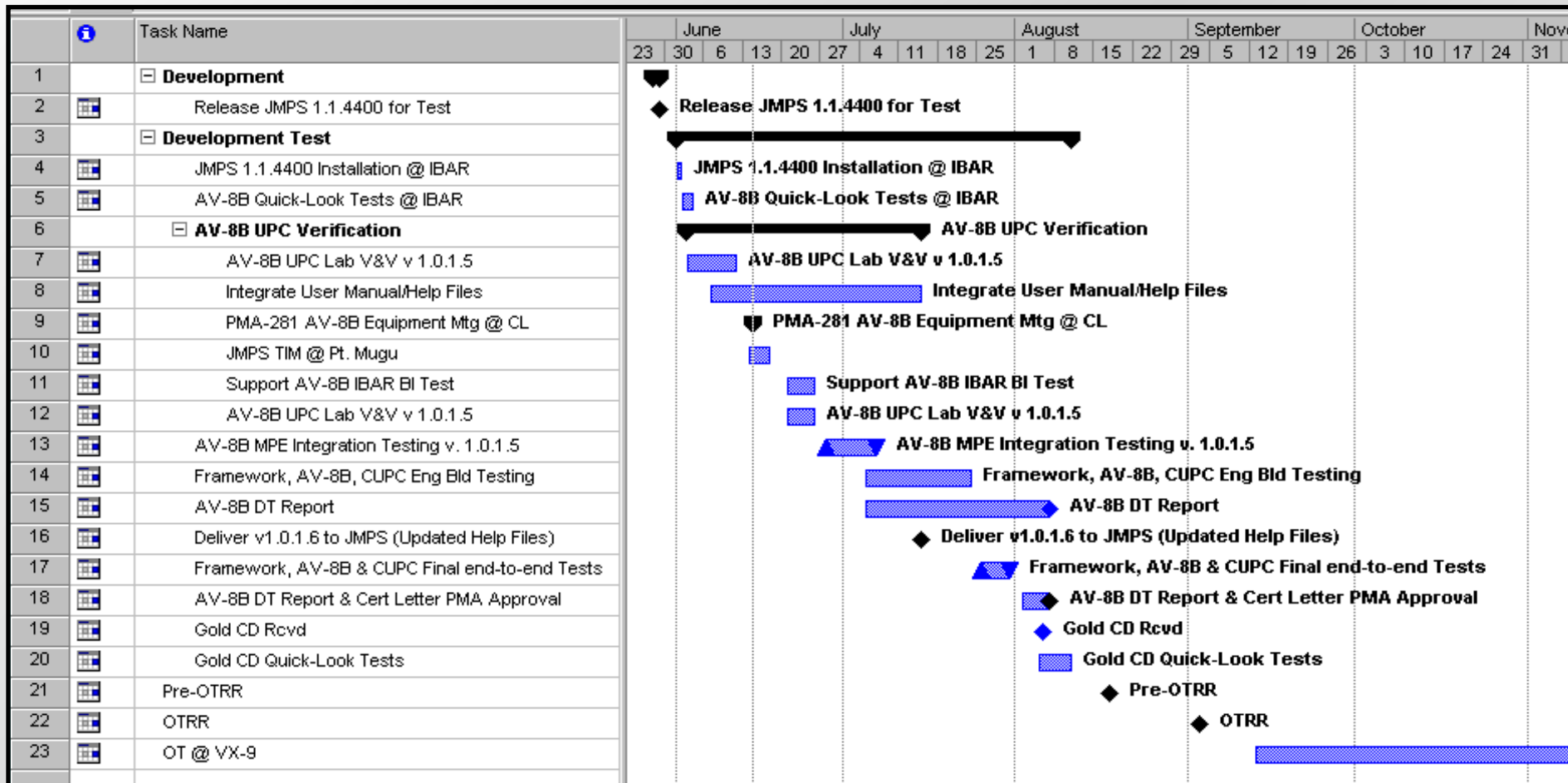
- Actual maximum gross weight limit is 32,000 lb as per Chapter 4 of the AV-8B NATOPS**
- Purchase (~200K) of Wings Data Base Flight Performance Program can fix this**

4. The FPM limits all level flight calculations from 0.5 Mach to 0.8 Mach

- JMPS uses only the Constant Mach/Constant Altitude Charts in NATOPS to impose these limits even though there are Low Altitude Cruise Charts and Optimum Cruise Charts in NATOPS as well that operate outside these limits**
- Purchase (~200K) of Wings Data Base Flight Performance Program can fix this**



Schedule





UPC's



- **AARGM**
- **AV-8B**
- **CUPC
(JSOW/JDAM)**
- **E-2C**
- **EA-6B**
- **ETIRMS**
- **F/A-18**
- **HARM**
- **JSF**
- **MH-60**
- **SLAM-ER**
- **TAMMAC**
- **V-22**



JMPS-CUPC TIM Brief *JSOW/JDAM/EGBU*

Denny Lauer/DCS Corp CUPC Manager
Stan Sneed/Raytheon MP Manager
17 June 04





CUPC Process Change



- Support MPE-driven approach for spiral releases
 - **Support AV-8B and F/A-18 MPE OT onramp**
 - CUPC 1.0.1 supports AV-8B and FA-18 H2E MPE
 - CUPC 1.1 supports FA-18 19C MPE
 - » Adds JSOW Unitary
- Define/develop realistic schedules with critical paths
- Support DR resolution & establish quantifiable metrics
 - **Priority-driven DRB insures high priority DRs addressed**
 - Acknowledge risk of incorporating low priority DR's late in development and it's impact on system stability
 - Additive effect of numerous low priority DR's can have significant affect on usability/suitability



CUPC Process Involvement



- Release Weekly or bi-weekly engineering builds
- Participating in Additional Tests:
 - Weekly IBAR integration tests
 - Participating in micro-EDT Tests
 - Planning for micro-BSI test w/AV-8
- **Scheduled week of 28 June**
- Providing weekly CUPC metrics to JMPS IPT providing SCRs for review/prioritization
- CUPC Team sees these as productive, especially the IBAR integration work



JMPS/CUPC Process Efforts



- Participating in and supporting:
 - **Performance Working Group (2 per week)**
 - **Human Factors, Requirements, UPC DR/SAR Working Group**
 - **JMPS Weekly Telecon**
 - **JMPS DRB**
 - **JMPS Interface Working Group**
 - **JMPS Security Working Group**
 - **JMPS Focus Working Group**
 - **MPE Working Groups**
 - **DR Gathering Working Group Telecon**
 - **JSLIC Changes Working Group**



CUPC Contracts Issues



- Changed Contract Scope:
 - **Added CUPC 1.0.1 release/integ support for AV-8B MPE**
 - **Changed CUPC 1.1 delivery date**
- PMA-201 and Raytheon have resolved all contractual issues to cover current plans
- Future schedule/scope changes will require contracts mods, but PMA-201 team is ready to support in timely manner
- With continued extensions of MPE effort, expect to add support to Raytheon contract.



MPE Challenges



- JMPS MPE Hardware config not fully defined
 - **Need Fleet configuration defined so development/testing is in a more representative environment**
- Two CUPC SCR (418/437) fixes failed during 09 June IBAR tests
 - **Failure modes not fully understood**
 - **In analysis.**
 - Raytheon investigating in IBAR this week and next
 - **SCR 437 (Qty Rel LARs go dashed/links break) causes an OMF (routes no longer usable)**
 - **Will look to JMPS SE support by 28 June if current approach not productive**



MPE Challenges



- MPE-centric approach will initially require multiple versions of CUPC
 - **Issues: Configuration Control and Support Cost**
- **Specific MPE Milestone scheduling needs to have a generalized MPE review prior to formalization.**



SLAM-ER Process Changes

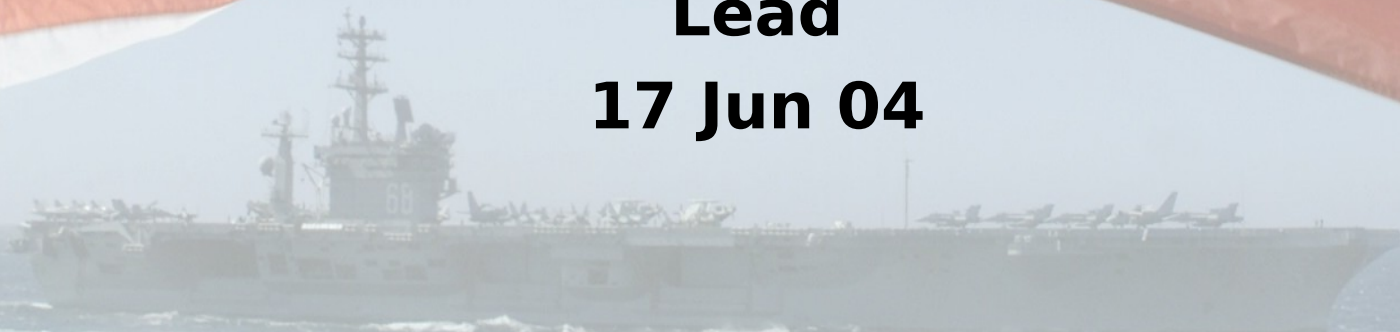


- **Boeing**
 - **Current contract does not support any process changes due to JMPS process changes**
 - Does not support STR fixes
 - Beta 0.4 Testing as risk mitigator
 - **New contract in works - Oct/Nov 04**
- **Navy**
 - **Test SLAM-ER UPC Beta 0.4 as if FQT'd**
 - IBAR, SLAM-ER Mugu Lab, SEI Lab
 - Known limitations identified
 - **Use new releases of J-SLIC, framework, F/A-18 MPE UPC's**
 - Beta 0.4 built and tested against JMPS 4200 & F/A-18 1.0.4
 - **Identify any discrepancies between the builds, with other UPC's, and User Impacts**
 - **Participate in weekly integration testing using Beta 0.4**
 - **Allow users to test Beta UPC (SLAM-ER Project Pilot, JMPS Project Pilot, JMPS User Community, VX-9)**
 - **Navy DR Process will support MPE DRB**
 - DR Review - 12 Jul 04



JMPS Technical Interchange Meeting SLAM-ER

Janice Metz
SLAM-ER Mission Planning
Lead
17 Jun 04





Current SLAM-ER Process



- **Boeing**

- **Monthly EVMS Reports - analysis by NACWD 4.1**
- **SLAM-ER Mission Planning SEI Level 3**
 - Processes cover STP, SDP, STR, Peer Review, Integration Testing, Software Trouble Reports, E2E, FQT, DR Reviews, DT Support, etc.
- **Integration and Test with final Framework and F/A-18 Builds**
- **E2E prior to or during FQT**
- **Navy witness SLAM-ER UPC FQT - 30 Sep 04**
- **Deliver to Navy for V&V**
 - STR Database - maintained by Boeing
 - Identified software trouble reports found after FQT delivery
 - Boarded by GSMP IPT for resolution & fix build



Current *SLAM-ER* Process (Cont)



- **Navy Test Team**

- **Testing**

- Mugu and China Lake use approved test plans
 - » Traceability to ORD, FRD and TEMP
 - » Includes Captive Carries
 - » Ground Test and E2E if necessary
 - Release to NavMPS once our initial V&V testing is complete
 - Generate Flight Clearance Package

- **DR Process**

- Navy generated DR's maintained by Cindy Stratton
 - Priorities assigned by Project Pilot
 - DR's begin with delivery of FQT Build
 - Problems identified are passed to Boeing for analysis
 - DR Review is rack/stack
 - » GSMP IPT authorizes final list based on funding/schedule
 - » Boeing implements fixes in next build



SLAM-ER Process Changes



- **Boeing**

- **Current contract does not support any process changes due to JMPS process changes**
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- **Navy DR Process will support MPE DRB**
 - DR Review - 12 Jul 04



SLAM-ER Involvement with JMPS Process



- **Participate in weekly IBAR integration tests**
- **Participate in micro-EDT Tests**
- **Will support MPE DRB when activated this summer**



JMPS/SLAM-ER Process Efforts



- **Participate and support**
 - **Performance Working Group (2 per week)**
 - **Human Factors, Requirements**
 - **JMPS Weekly Telecon**
 - **JMPS DRB**
 - **JMPS Interface Working Group**
 - **JMPS Security Working Group**
 - **JMPS Focus Working Group/TIM's**
 - **MPE Working Groups**
 - **DR Gathering Working Group Telecon**
 - **JSLIC Changes Working Group**



SLAM-ER Contracts

- **Current Contract**
 - **JMPS & Missile Changes**
 - Mission Planning portion completes end of Dec 04
 - » CDRL Deliveries
- **Follow-on Contract**
 - **SOW for Maintenance of SLAM-ER UPC**
 - Supports out year efforts
 - Flexible to support Process Changes
 - Plan to have Boeing on contract by Oct/Nov 04



SLAM-ER Concerns

- **Final framework and F/A-18 UPC**
 - **Schedule is part of existing contract and difficult to modify**
 - **Scheduled to build against these versions in Jan 04**
 - Prefer by early Jul 04 – support UPC Build 0.5
 - Critical by end of Aug 04 – support FQT
- **MPE Environment for Developers**
 - **No MPE CD's have been delivered**
 - **Need to support development & integration testing at Boeing**
- **Process changes impacting Boeing's development**
 - **Other UPC's are in V&V - SLAM-ER in development**



SLAM-ER Concerns



- **SLAM-ER UPC - MPE Stability/Integration**
 - **Based on other UPC experience - considered risk**
 - **Mitigation - Loaded at IBAR with F/A-18 MPE in Workgroup environment with Build 4400**
 - Successfully planned and download SLAM-ER ATA mission to DTD - 9 Jun 04
 - » Used PTW to access and retrieve image product
 - Justin tested Beta -10 Jun 04
 - Intermittent integration issues with F/A-18 data load - Boeing is investigating
 - » Issue is with tabular editor - WDP has not displayed this problem to date
 - 3 issues identified and resolved
 - » No DTED available during Control A/C planning - mission range required water pages which were not created
 - » Mission Check-list disappears - Boeing already has fix in hand
 - » Puck on Target Definition Menu doesn't work - framework design does not allow UPC control at this point and CONOPS is that a target will already exist
 - If no target exists, user can manually enter coordinates
 - Project Pilot pleased with many aspects of the UPC
 - Test using Scenario 7 from BI
 - **Loaded at SLAM-ER Mugu Lab with F/A-18 MPE in a standalone mode with Build 4200**
 - **Have requested Unitary UPC be loaded with SLAM-ER for further integration testing**



V-22 Mission Planning System Navy TIM Processes

June 14-17, 2004





Mission Planning Environment



- **V-22 Mission Planning System (VMPS)**
 - **Already MPE-focused**
 - VMPS = V-22 MPE
 - **TAMPS to PFPS to JMPS**
 - **While awaiting Asynchronous Release definition, applied VMPS-PFPS distribution model**
 - PFPS was available for 46th Test Squadron
 - VMPS delivered PFPS as a separate installation CD with the VMPS Mission Planning Module (MPM) and other applications that comprised our total system
 - **Our contracted-task is to re-host current PFPS-based functionality to a JMPS-based system**
 - Doesn't exclude leveraging new capabilities provided entirely by framework
- **Issues**
 - **None**

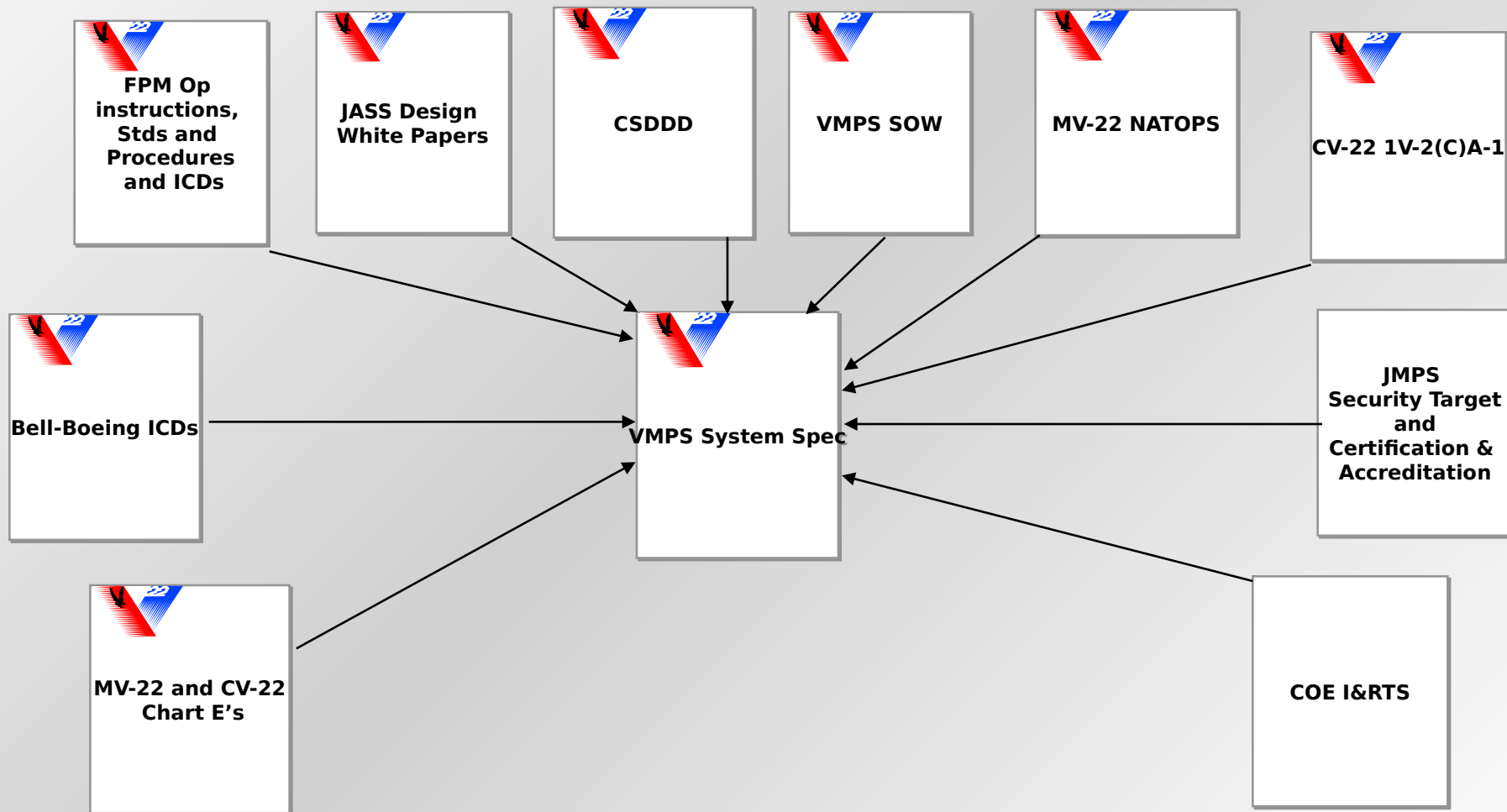


Requirements Management





VMPS 5.X Functional Baseline - Configuration Document Set



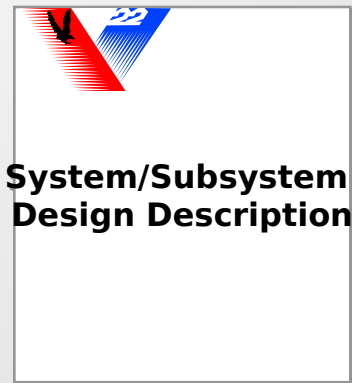


Functional Baseline

Document	Number	Version	Holder
Joint Operational Requirements Document (J ORD)	NO. AAS 50	Change 3	
NATOPS	A1-V22AB-NFM-000	Change 2	NAVAIR AIR4331
CV-22 1V-2(C)A-1	1V-2(C)A-1	Draft	
Flight Performance Model - Advanced ICD		2-Mar-2000	
MV-22 to VMPS ICD	D901-99666-3	ICN 25	Boeing
CV-22 to MDL ICD	D901-99539	ICN 16	Boeing
Fuel Management and Gaging ICD	D901-999513	ICN 28	Boeing
MV-22 Chart E	901-979-124	Rev A 8 May 1998	Boeing
CV-22 Chart E	901-979-300	15-Dec-1999	Boeing
Crew Station Detailed Design Document	901-989-654		Boeing
J MPS Security Target	J V1-0448-10002	Ver 1.1b Beta 5-Draft	PMA-281
J MPS Certification and Accreditation			PMA-281
COE I&RTS	None	v4.1 August 2000	



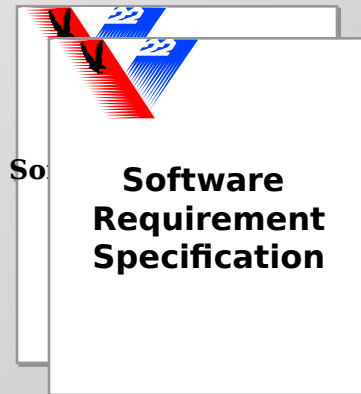
VMPS 5.X Allocation Baseline - Configuration Document Set (cont.)



System/Subsystem Design Description

System/Subsystem Design Description, D04062015-00

- ◆ Uses cases defined
- ◆ Requirements Allocation Matrix (Use cases and other system components)
- ◆ Traceability Matrix (i.e., uses cases to requirement sources)



Software Requirement Specification

Software Requirement Specification(s), D42062020-A1

- ◆ FPM Product
- ◆ UPC Product
- ◆ CSCI Functionality
- ◆ Verification Method
- ◆ Traceability Matrix (SS requirement to SRS requirement)



User Interface Design Document

User Interface Design Document, D42062018-A1

- ◆ Graphical User Interface defined
- ◆ Traceability Matrix (i.e. UIDD requirements to requirement sources)



JORD Traceability



J oint Operational Requirement Document (ORD) for the J oint Multi-Mission Vertical Lift Aircraft (J MVX) Change 3	Requirement PUI #	Satisfied by
(b) Short notice launch within 60 minutes (Threshold)/15 minutes (Objective) of mission receipt	J ORD-001	SS-006, SS-170
Data integrity shall be 99.99% (Threshold)/99.999% (Objective) for all information transfers.	J ORD-023	
A DSS with removable and portable nonvolatile solid-state data storage medium, e.g., cartridge, disk, etc., is required (Threshold).	J ORD-002	SS-125
1 Upload, store, and download data between the aircraft's onboard-integrated avionics system and computerized ground support systems (Threshold).	J ORD-003	SS-036, SS-127, SS-129, SS-130, SS-131, SS-171, SS-177, SS-182
Data integrity shall be 99.99% (Threshold)/99.999% (Objective) for all information transfers.	J ORD-024	Not allocated per VMPS PDR
2 Segregate the downloading of classified and unclassified data and provide the capability to destroy classified information with minimal crew actions when required (Threshold).	J ORD-004	Aircraft does not segregate classified and unclassified data. Currently, no mission planning requirement for sanitization.
Interface with the appropriate service-unique mission planning system (Threshold).	J ORD-005	SS-036, SS-127, SS-171, SS-177, SS-182



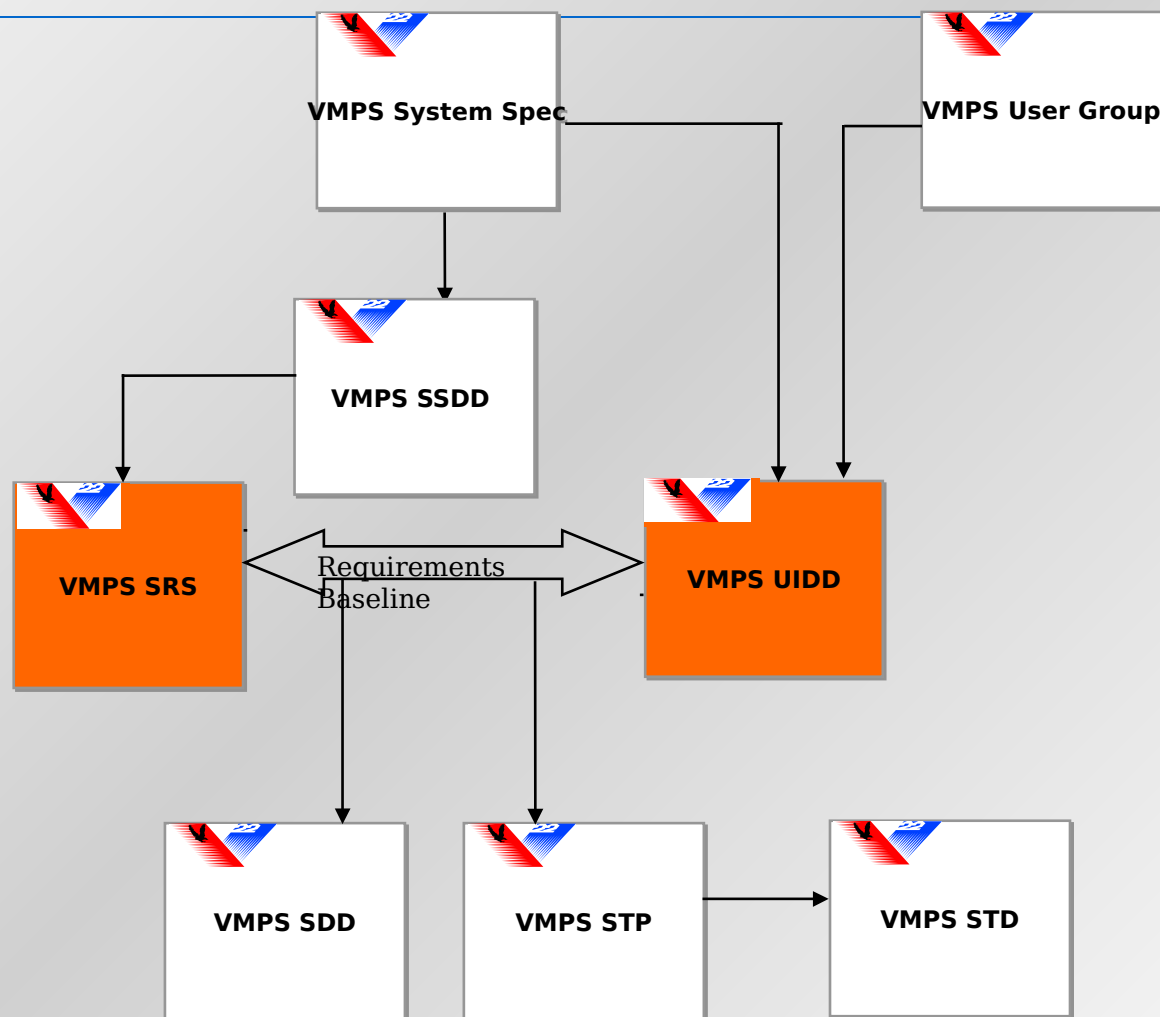
Requirements Management



- **Requirements tracked and monitored in Dynamic Object-Oriented Requirements System (DOORS)**
- **System/Subsystem requirements (System Subsystem Specification(SSS))**
 - **Requirement Allocation Matrix (RAM) to source (JORD, etc)**
- **System/Subsystem design**
 - **SS requirements allocation**
 - Framework
 - UPC
 - Hardware
 - COTS
 - **Use cases**
 - UPC high-level use cases assigned
 - Framework use cases assigned where possible
 - Fully met by single allocation or fully met by multiple allocations (partial allocations)
 - **VMPS build assignments**



VMPS 5.X Requirements Baseline - Document Set

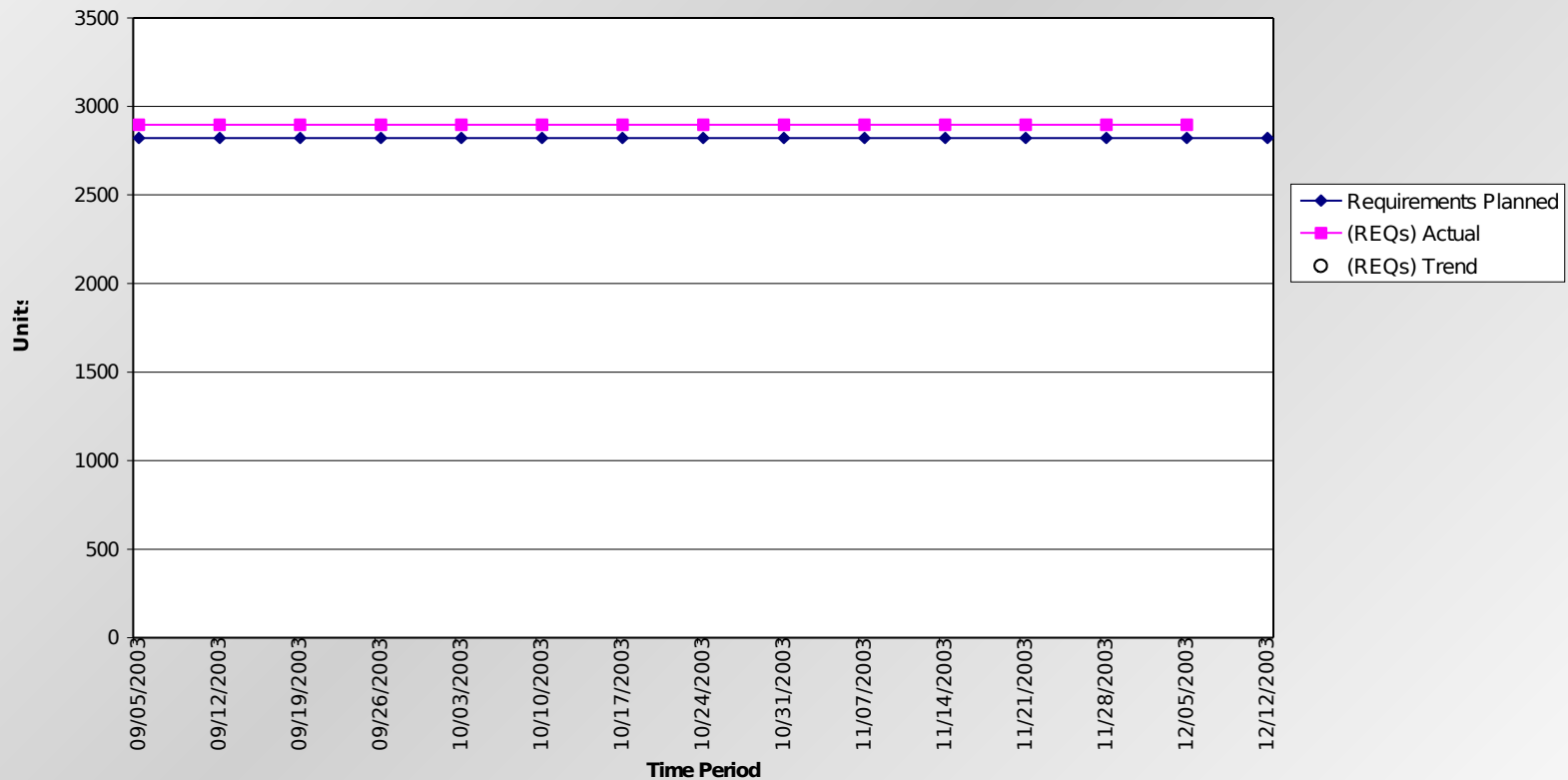




VMPS 5.0.1 Requirements Progress Metrics



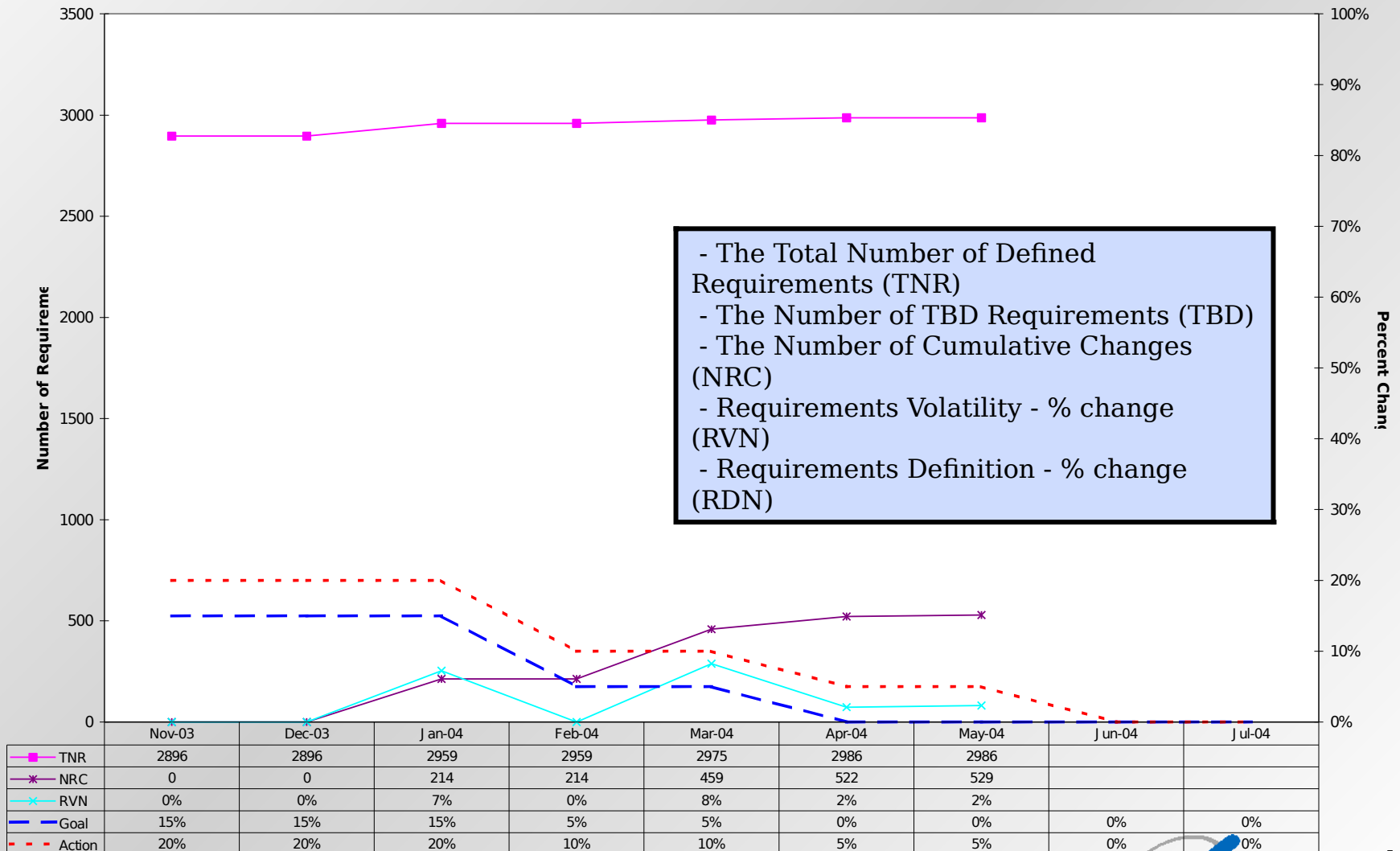
Progress: Requirements





Requirements Volatility Metrics

Requirements Volatility Report Requirements Management

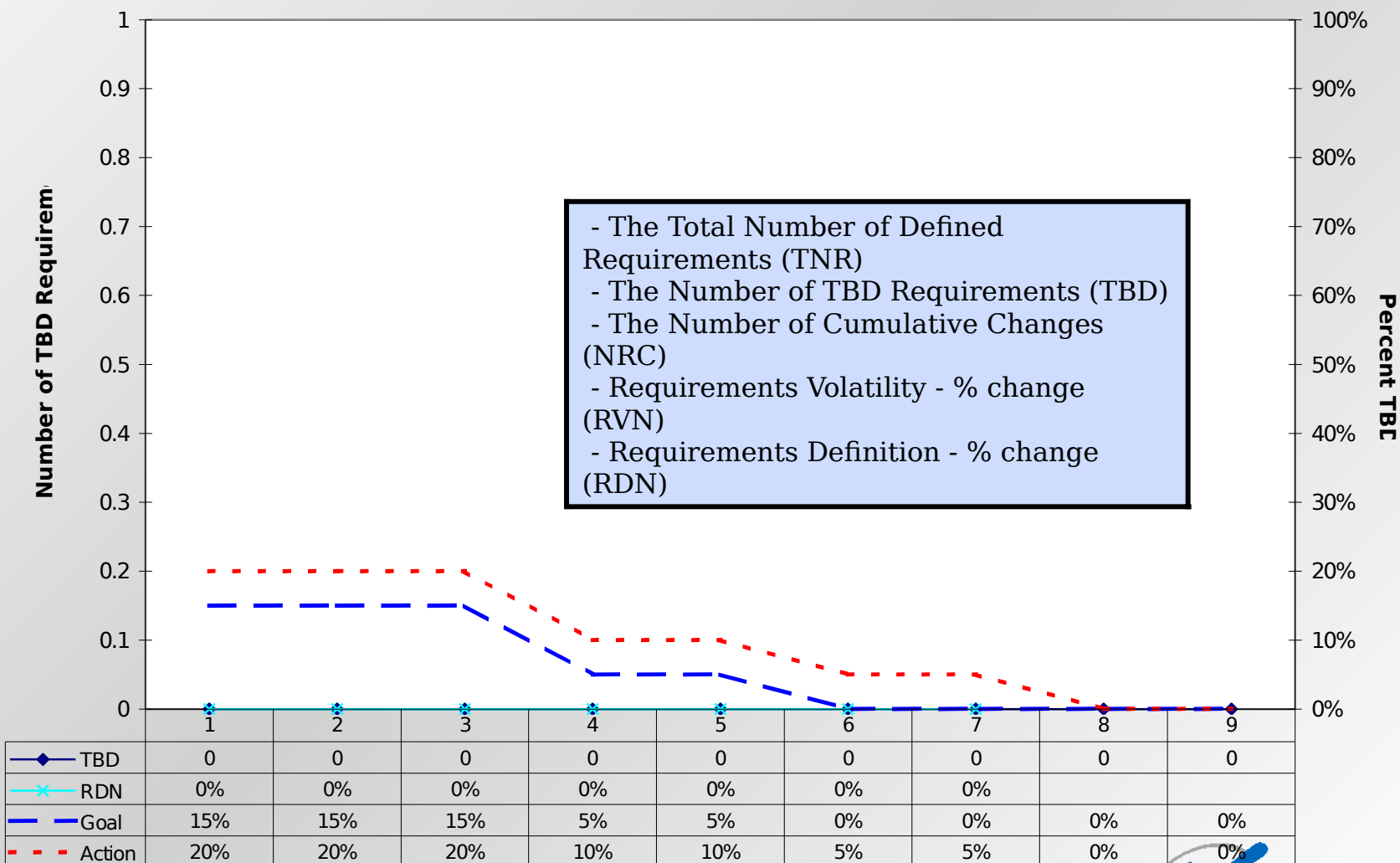




New Requirements Volatility Metrics



Requirements Volatility Report Requirements Development





TIM Requirements Process Issues



- **MPE approach establishes a duplicate trace path**
 - **Current V-22 documentation (CRDs, SSS, SSDD) is firmly established**
 - **Bi-directional traceability exists from top to bottom (JORD to code sub-systems and test cases)**
 - **Consider tailoring of process to utilize V-22 documents and tracing with addition of information to communicate\clarify functionality**
 - Stated objective of process change?
- **Build approach**
 - **V-22 will have multiple releases with accumulating functionality**
 - Multiple variants (MV, CV), multiple blocks, multiple OFPs
 - More OFPs during aircraft development but still several per block
 - **Consider using the features of VMPS requirements management tool (DOORS) to identify MPE build assignments**
- **Observation - can we link DRs to SOF (etc) if it is an anomaly?**
 - **Several V-22 DRs are related to non-extensibility of framework items (mission binders, symbology, Leg Editor buttons)**



Discrepancy Reporting



- **Configuration Management Function**
- **V-22 has an existing system of reporting and tracking CRs (DRs)**
 - **Tracking of defects for life-cycle from requirements through UPC FQT**
 - **No “system” exists yet but will utilize same change management process**



TIM Discrepancy Reporting Process Issues



- **Try to minimize duplication\complexity of CR management**
 - **We experienced much confusion between NGIT IPR numbers, DRs and Government Databases**
 - **Consider tracking only post-UPC FQT defects in System DR database**
 - Metrics are available for UPC CR (DR) disposition
 - A UPC delivery (inch-stone) schedule will be established to get to System Integration and Test
 - Disposition of UPC CRs takes place at UPC CCB as schedule dictates to make scheduled UPC delivery to integration test
 - Different levels of product control are applied before and after UPC FQT
 - » UPC developmental baseline
 - » System IT&E baseline
 - Implement MPE System CCB (replace MPE DRB)



UPC Integration Process





UPC Integration Process



- **Process Overview**

- **Define integration builds in a build plan**
- **Create integration build when corresponding code is complete**
- **Test integration build**
- **Fix any problems found**
- **Will not proceed to next integration build until finished**



Integration Process



- **Integration Builds**

- **What**

- Break each VMPS 5x version into smaller functional pieces
 - Each integration build will add increasing capability

- **Why**

- Defining the order components will be coded and tested helps allocate resources
 - Reduce technical and schedule risks
 - » VMPS 5.0 gap analysis indicated too many defects found in integration
 - » Provide better visibility that software is progressing as planned
 - » Find and fix technical problems earlier
 - » Start formal testing sooner



Integration Process



- **Integration Builds (cont)**

- **How**

- Determine the number of integration builds needed
 - Assign functional areas to an integration build
 - Plan a schedule for the builds
 - What would be useful to the team

- **VMPS 5x Build Plan**

- Excel spreadsheet
 - All SRS & UIDDD Requirements for the current 5x version assigned to an integration build
 - Requirements count metrics
 - » Total, SRS, UIDDD, Functional Area, Integration Build
 - Status column to track progress
 - » Developers enter code complete date for each requirement
 - » Integrators enter integration complete date for each requirement
 - Graphs sheet to show progress



Integration Process



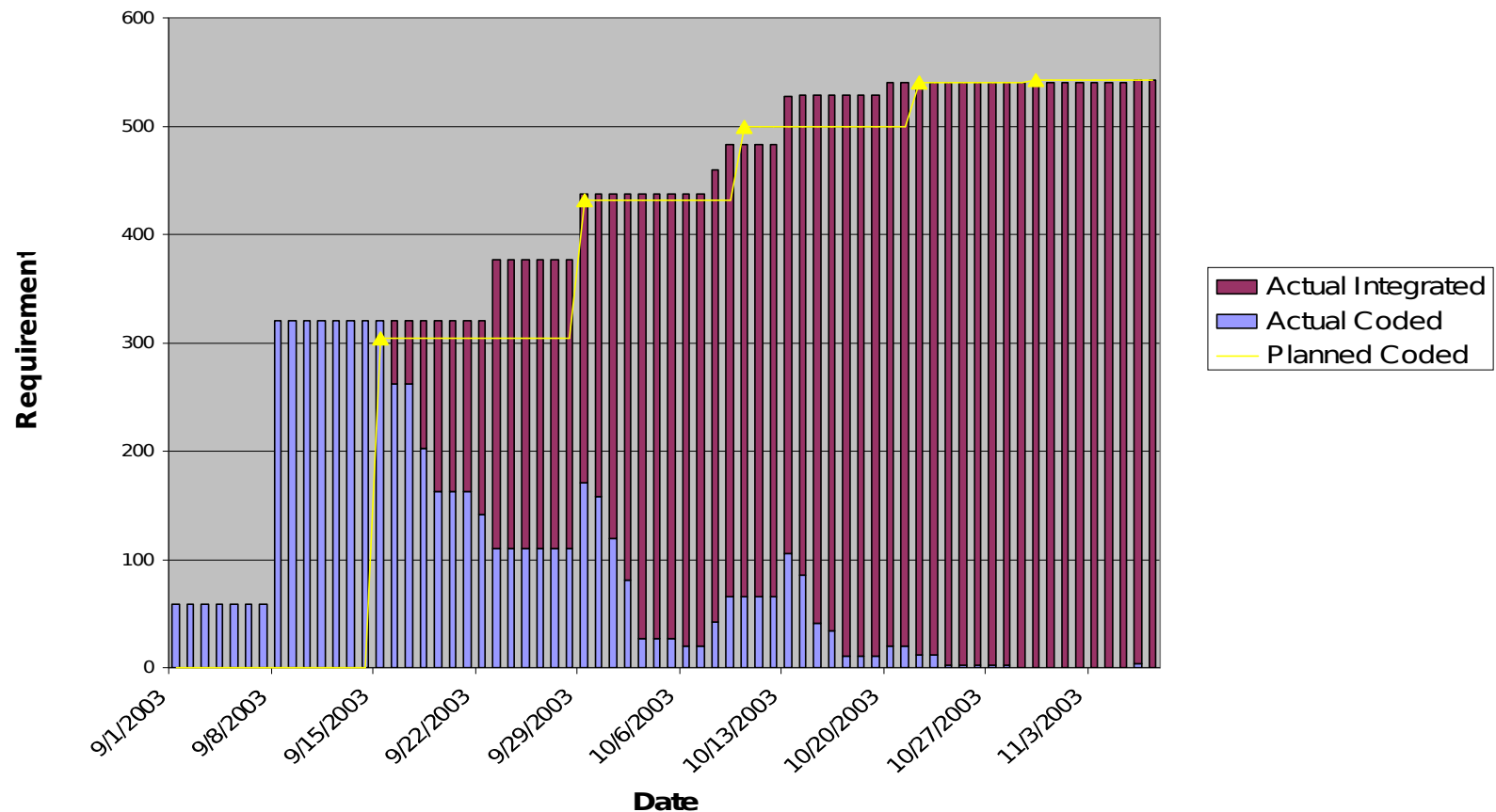
- **Integration Test Procedures (ITPs)**
 - **Test that software units interact as designed**
 - **Verify that all UIDD and SRS requirements for the build have been covered**
 - **One ITP for each functional area/requirements section**
 - Larger functional areas may have additional ITPs to test UIDD fields/ranges
 - **ITPs are peer reviewed and under CM control**
 - Ideally ITP will not be written by cognizant developer
 - **ITPs will be run after the corresponding code and integration build is complete**
 - Normally ITP will not be run by developer
 - **ITPs will be run before delivering software to the qualification test team**



Integration Process



VMPS 5.0.1 Status





UPC Qualification Testing





Requirement Criticality Assignment



- Each requirement is assigned a criticality
 - Helps focus test efforts on important functionality. “Work Smarter”
 - Mechanism for management and other engineering disciplines to get early buy-in on focus of testing efforts.
 - Assignment based on mission critical functions and workarounds.

Requirement Criticality Definition

Criticality	Function	I ASS or VMPS Workaround
4	Essential to Mission	No Workaround or High Workload
3		Workaround Exists or Low Workload
2	Not Mission Essential	No Workaround or High Workload
1		Workaround Exists or Low workload

High



Low



5.0.1 Software Qualification Testing



- **Test Development Process**
 - **Test Scripts**
 - Based on SRS and UIDDD requirements
 - Identify test data required
 - Internal Test Peer Review
 - Group Peer Review
 - **Draft Procedure Development**
 - Based on test scripts
 - Before software available
 - **Procedure Development**
 - Dependent on software build plan implementation
 - Step by step procedures defined
 - Actual test data developed using software under test
 - ISTRs written against parts of software implemented according to the build plan
 - **Preliminary Qualification Test/ Formal Qualification Test**



5.0.1 Software Test Progress

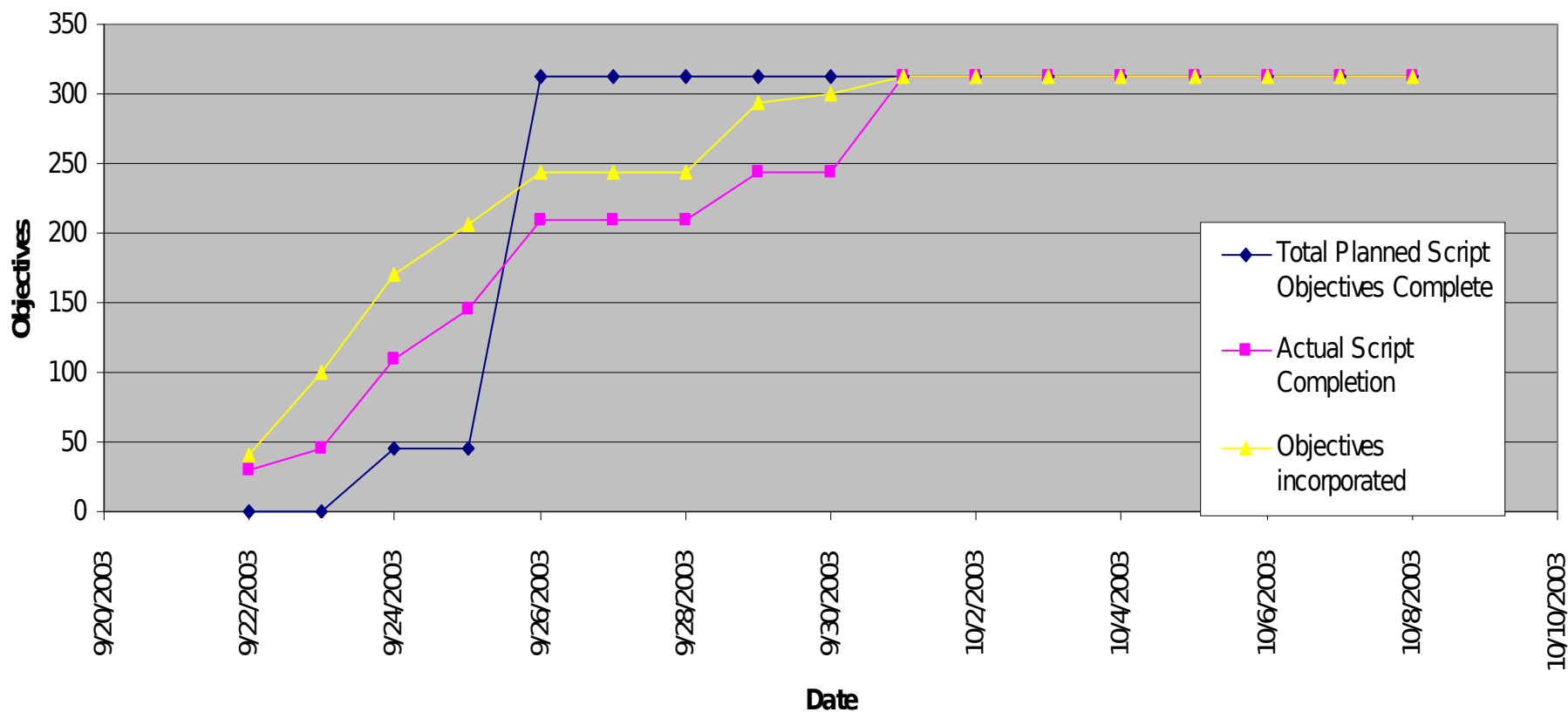
Procedure Name	Engineer	Script Development Phase					Procedure Development Phase								
		Script Build-up					Data Build-up			STR	Procedure				Procedure ready for EIT date
		Build-up Test Script Objectives	Build-up Script Objectives Completed	Build-up % Script Completed	Build-up Script Planned Completion Date	Build-up Script Actual Completion Date	Build-up Data % Complete	Build-up Data Target Completion Date	Build-up Data Actual Completion Date	# of STRs	Script Steps	Script Steps Incorporated	Procedure % Complete	EIT Ready Planned Date	
VMPS 5.0.1															
Aircraft Configuration Basic	Bennett	11	11	100%	09/26/03	09/25/03	100%	10/31/03	10/30/03		11	11	100%	09/25/03	09/25/03
Aircraft Configuration Scenario 1	Bennett	15	15	100%	09/26/03	09/25/03	100%	10/31/03	10/30/03		15	15	100%	10/07/03	10/09/03
Aircraft Configuration UI Parameters	Bennett	10	10	100%	09/26/03	09/25/03	100%	10/17/03	10/30/03		10	10	100%	09/25/03	09/25/03
Admin	Wampler	2	2	100%	09/26/03	09/24/03	100%	10/13/03	10/13/03		2	2	100%	10/13/03	10/02/03
Aircraft Definition CV	Wampler	49	49	100%	11/11/03	11/11/03	100%	11/11/03	11/13/03		49	49	100%	11/11/03	11/11/03
Aircraft Definition MV	Wampler	58	58	100%	09/26/03	09/24/03	100%	10/15/03	10/29/03		58	58	100%	10/15/03	11/11/03
Alerts Display	Wampler	19	19	100%	09/26/03	10/01/03	100%	10/29/03	10/28/03		19	19	100%	10/20/03	10/22/03
Alerts UI	Wampler	49	49	100%	09/26/03	10/01/03	100%	10/30/03	10/31/03		50	50	100%	10/22/03	11/03/03
Comm Planning Scenario	Wampler	4	4	100%	09/26/03	09/24/03	100%	10/15/03	10/15/03		4	4	100%	10/22/03	10/16/03
Manage Flight Plans & Mission Binder	Wampler	60	60	100%	09/26/03	09/26/03	100%	10/31/03	10/29/03		60	60	100%	10/28/03	10/28/03
Install	Wampler	4	4	100%	09/26/03	09/26/03	100%	11/07/03	11/13/03		4	4	100%	11/04/03	11/13/03
Add / Delete Legs	Bennett	15	15	100%	09/26/03	09/29/03	100%	11/07/03	10/30/03		15	15	100%	10/07/03	10/07/03
Edit Legs	Bennett	12	12	100%	09/26/03	09/29/03	100%	10/17/03	10/30/03		12	12	100%	10/10/03	10/08/03
Edit Route Point	Bennett	8	8	100%	09/26/03	09/29/03	100%	10/17/03	10/30/03		8	8	100%	10/06/03	10/06/03
Leg TE UI	Bennett	12	12	100%	09/24/03	09/22/03	100%	10/24/03	10/30/03		12	12	100%	09/22/03	09/22/03
Leg TE UI Menu & Toolbar	Bennett	9	9	100%	09/24/03	09/22/03	100%	10/24/03	10/30/03		9	9	100%	10/08/03	10/07/03
Leg TE UI Parameters	Bennett	8	8	100%	09/24/03	09/22/03	100%	10/24/03	10/30/03		8	8	100%	09/22/03	09/22/03
Leg Editor UI	Bennett	10	10	100%	09/24/03	09/23/03	100%	10/29/03	10/30/03		10	10	100%	10/08/03	10/07/03
Leg Editor UI Parameters	Bennett	6	6	100%	09/24/03	09/23/03	100%	10/29/03	10/30/03		6	6	100%	09/23/03	09/23/03
				100%			100%								
Grand Totals		361	361	100%			100%				362	362	100%		



5.0.1 Test Script Development

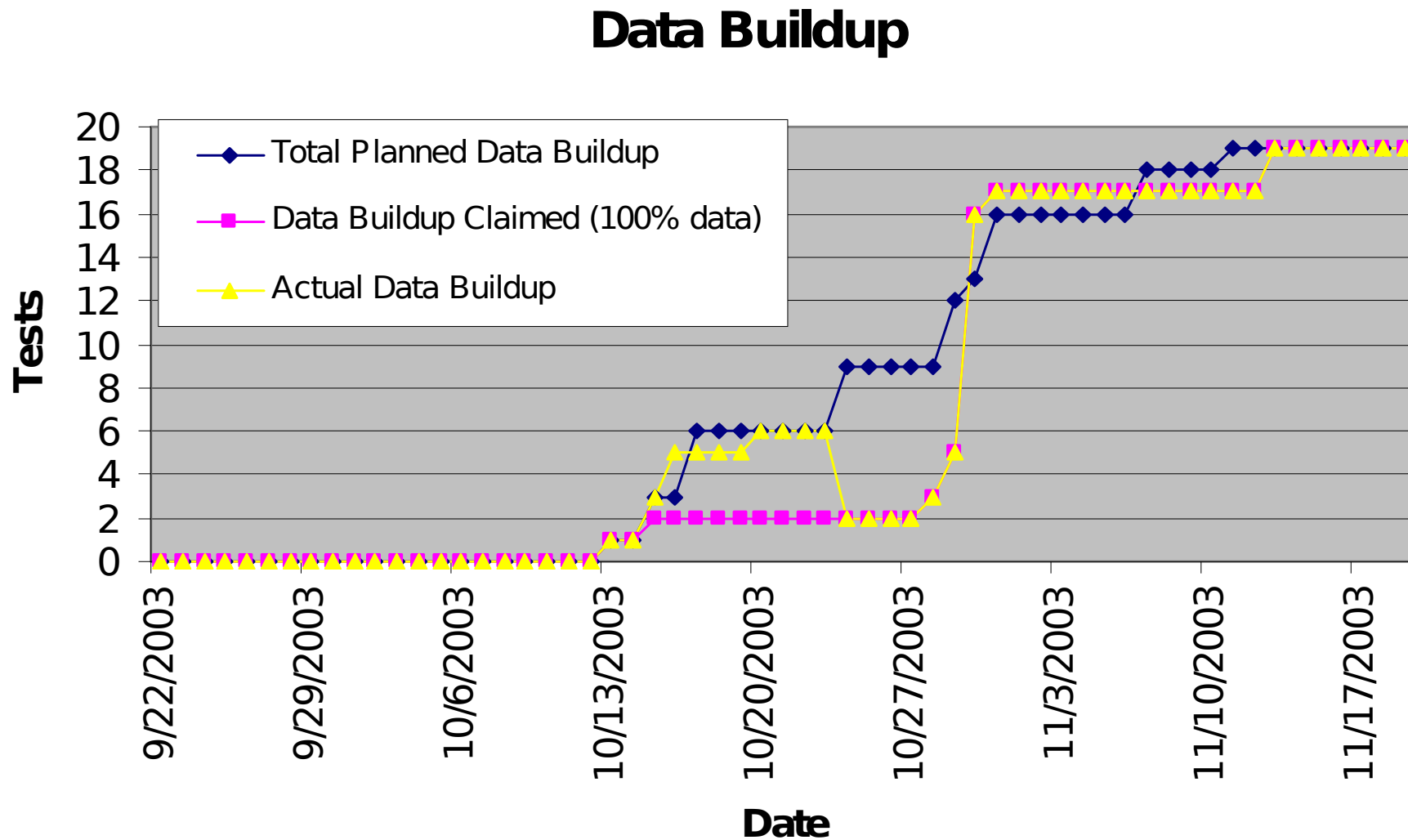


Script Completion Progress





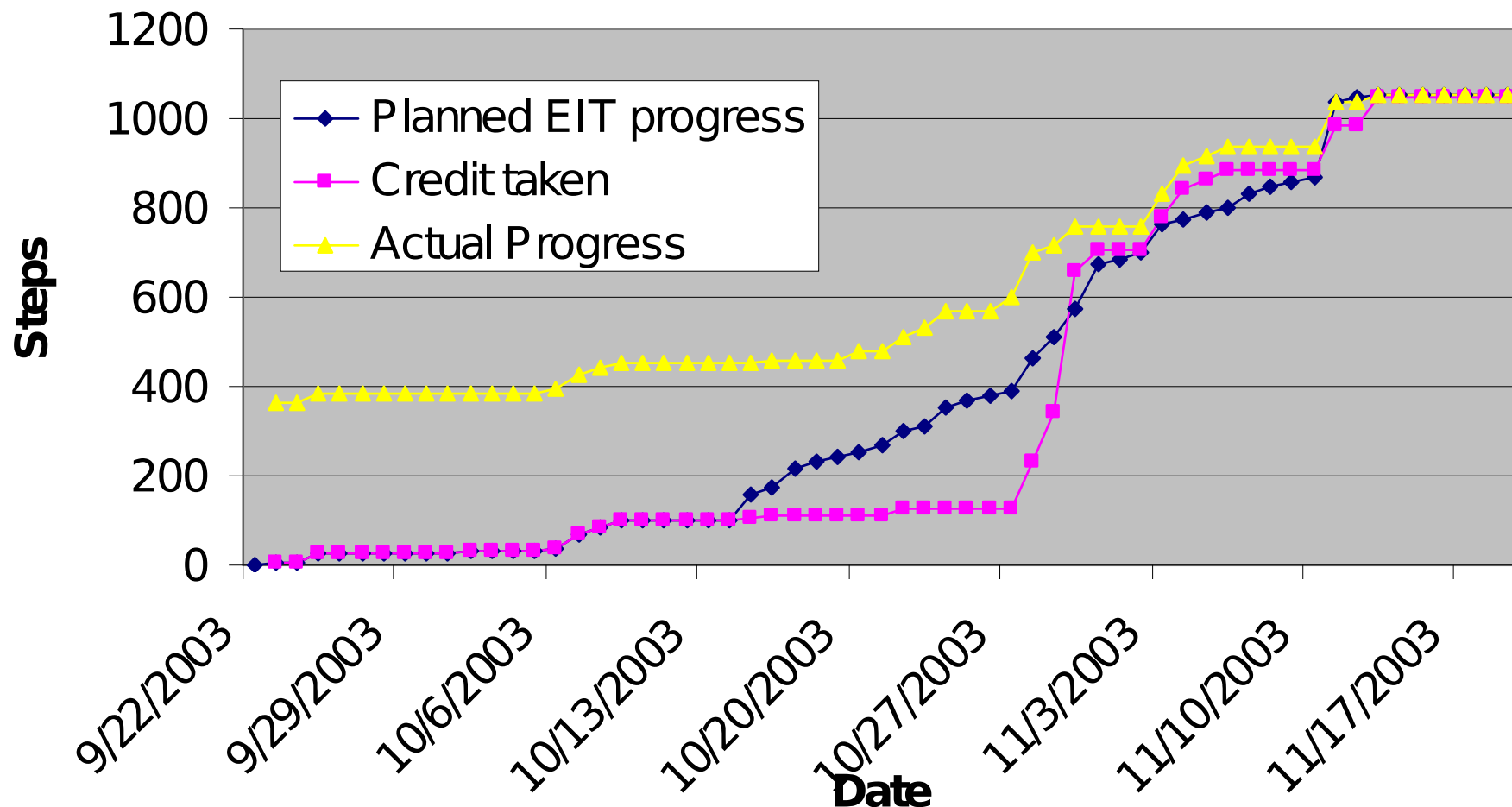
5.0.1 Data Buildup





5.0.1 Progress Roll-up

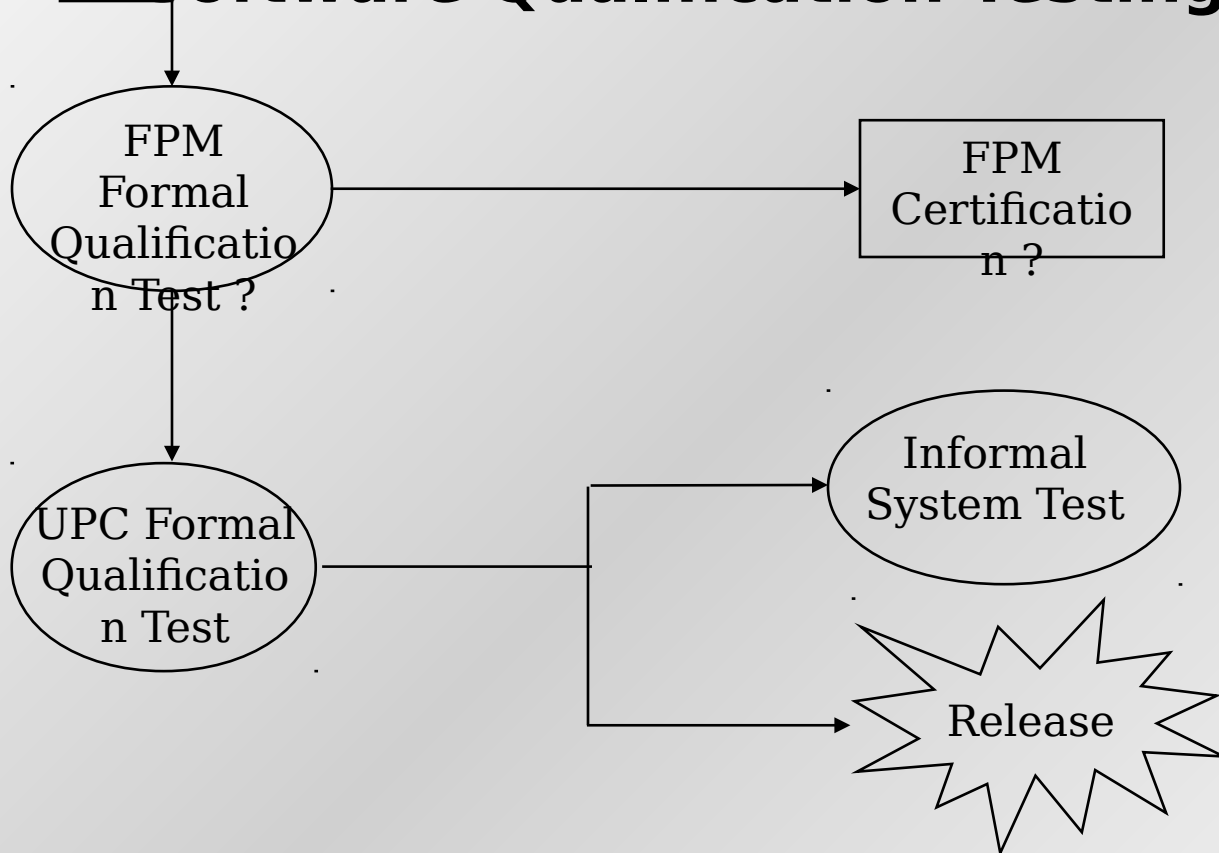
Total EIT Progress





5.1 and 5.2 Testing Timeline

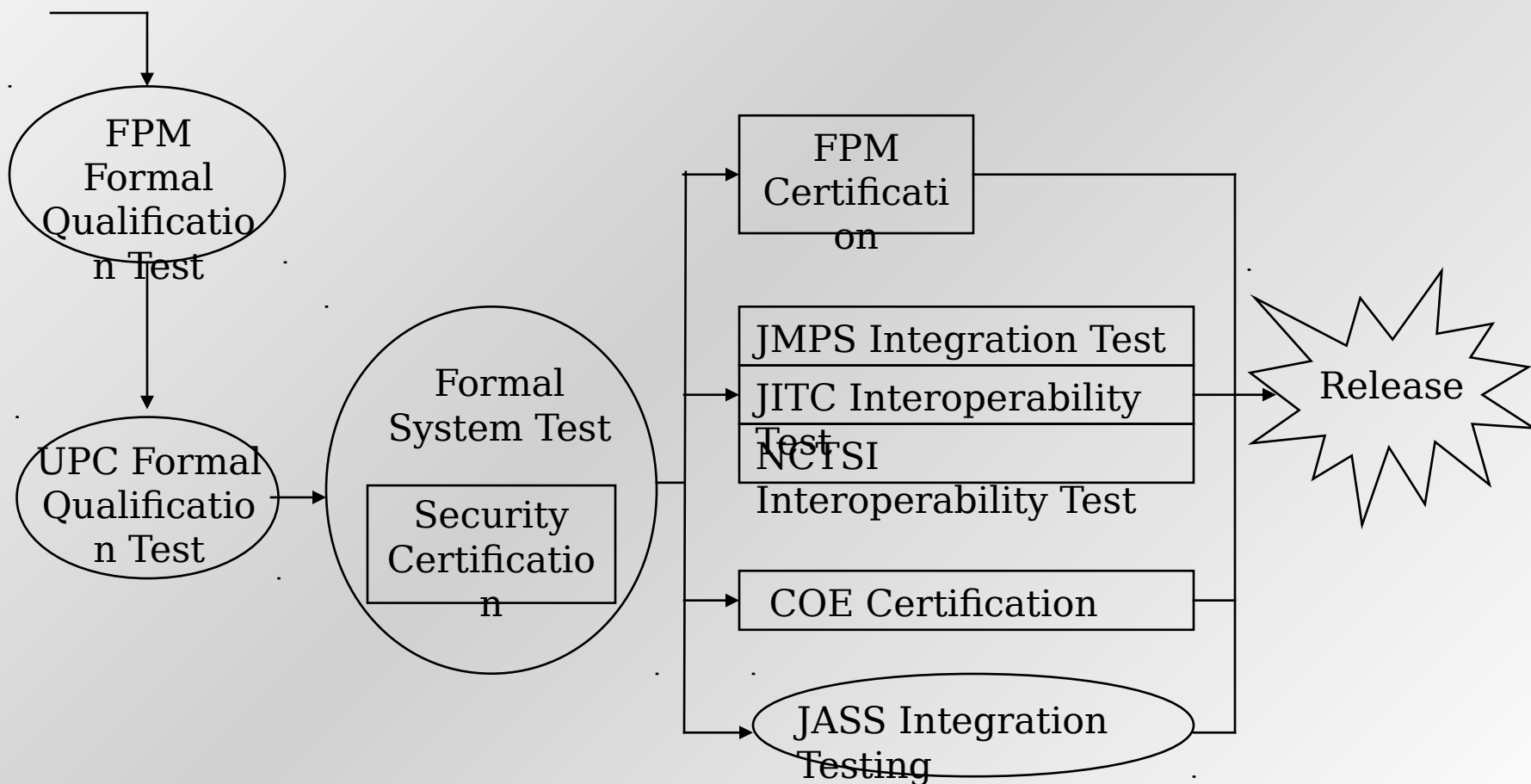
• Software Qualification Testing





5.3 Test Release Timeline

• 5.3 Software Testing Timeline





System Integration Testing



- **Formal System Test**
 - **Leverages UPC FQT (UPC SRS requirements verification) which utilizes all system components of a configuration controlled system**
 - **Adds verification of VMPS system requirements**
- **Verify load of all avionics**
 - **JASS**
 - **Radio**
 - **Map**
 - **GPS**
- **Verify download of modified data**
 - **Flight Plan**
 - **Comm Plan (not reusable)**
 - **Mission Reconstruction**
- **VMPS to JASS aircraft performance comparison.**
 - **Results “certified” by NAVAIR flight vehicle performance branch.**



TIM Test, Integration, Performance Process Issues



- **Provision of early UPC integration builds to System IT&E can create a confusing CM issue**
 - Writing System DRs before the UPC is done
 - Consider tightly-focused System IT&E test objectives not in conflict with UPC integration build schedule
- **The hardware necessary for V-22 end-to-end testing does not exist at China Lake or Point Mugu**
 - Consider performing MPE testing in the V-22 Avionics Integration Lab located at Raytheon in Indianapolis
- **V-22 pilot resources limited**
 - Operation Effectiveness scenario development
 - Consider knowledgeable non-pilot candidates
- **Tracing of System Integration Test Cases to SOF**
 - Test cases and procedures on West Coast, requirements in Indianapolis
 - Consider using V-22 DOORS database and test configuration control and management



TIM Test, Integration, Performance Process Issues (continued)



- **Level of testing required for frequency of releases**
 - **Full certification and integration scenario testing; or**
 - **Regression testing**



User Interface Working Group (UIWG)





Purpose



- **User Interface Working Group (UIWG) formed to provide guidance/direction from the users to the VMPS development team on system and GUI functionality and user mission planning needs**
- **Provides users with insight into progress and content of VMPS product**
- **UIWG provides feedback to development team on completeness\correctness of GUI design and operation**



UIWG Members



- **UIWG representatives from:**
 - **USMC**
 - **AFSOC**
 - **NAVAIR**
 - **Bell/Boeing**
 - **VMPS development team**



Background



- **UIWG meetings began in 1998**
- **19 meetings held to date**
- **UIWG meetings held approximately every 4-6 months**
- **UIWG decisions documented in meeting minutes, action items and User Interface Design Document (UIDD)**
- **Primary product is the UIDD**
 - **Intended to provide guidance/direction to developers on UI design and operation**
 - **Document the UIWG decisions for UIWG participants**



VMPS 5.x UIWG Effort



- **Beginning with the VMPS 5.X CONOPS\system design effort the UIWG took a different tack**
- **Needed more timely feedback from users**
- **Wanted users involved earlier in the system design process**
- **Instituted frequent teleconferences to review issues as they come up**
- **23 UIWG teleconferences held to date**



UIWG Teleconferences



- **One UIWG teleconference held since last IPR**

- **November 12, 2003**

- Review of methods for PDTM write for VMPS 5.X
 - Continue to write PDTM via Micro-MID
 - Direct write of PCMCIA card
 - USMC tends to prefer PDTM write via Micro-MID
 - AFSOC tends to prefer direct PCMCIA write
 - Current plan is to write PDTM via Micro-MID and investigate direct PCMCIA write for later 5.X releases



User Advisory Group Process Issues



- **V-22 pilot availability limited**
 - **Operational Assessment currently in progress**
 - **Operational Test January 2005**



UIWG Meetings



- **One UIWG meeting held since last IPR**
 - **December 9, 2003**
 - Review/close UIWG action items
 - Discussion of open VMPS design issues
 - Demonstration of VMPS V5.0.1
 - User hands-on experience with VMPS V5.0.1



Configuration Management



- **V-22 Mission Planning System**
 - **Multiple UPC builds to add to full MV-22 required functionality**
 - **With each scheduled build**
 - Implement changes as forced by ICD changes (new OFPs)
 - Implement fixes to CCB-approved bug CRs (DRs)
 - Implement CCB-approved UPC enhancements (requirements changes)
 - **Target other system components**
 - Which Framework build will be available?
 - **Different levels of CM control applied at life cycle stages**
 - Local desktop versus ChangeSynergy CM tool entry
 - Kill board versus UPC CCB versus System CCB



Logistics Issues



- **Delivery approach in near-term may not be achievable for VMPS 5.2 MV-22 Operational Test**
 - Consider as much as possible with full implementation baseline
 - MV-22 functionality delivery of VMPS 5.3 to MV FOT&E**
- **Poor VMPS coordination to-date with PMA-281 and PMA-205**



VMPS Project Notes



- **Approximately 120,000 SLOC (MV-22 total functionality)**
- **Team Size**
 - 7 developers
 - 3 systems engineers
 - 1 Configuration Management
 - 1 Quality Engineering
 - 2.5 Test
 - 1 Project Engineer



UPC's



- **AARGM**
- **AV-8B**
- **CUPC**
(JSOW/JDAM)
- **E-2C**
- **EA-6B**
- **ETIRMS**
- **F/A-18**
- **HARM**
- **JSF**
- **MH-60**
- **SLAM-ER**
- **TAMMAC**
- **V-22**



ETIRMS UPC
JMPS TIM
15 - 17 June 04

Project Lead: Aziz Awwad
Software Lead: Kathy Tran



Current Process



- **Schedule driven (Support EA-6B OFP release - multiple OFP configurations)**
- **Incremental Development Process**
 - **Build 1: Data Access Layer for EA-6B UPC**
 - **Build 2 : EA-6B UPC integration**
 - **Build 303C : Support BI #1**
 - **Build 307 : Support BI #2**
 - **Build 308 : E2-C MPE**
 - **Build 402 : All Legacy ETIRMS functionalities and new EA-6B ICAP-3 functionalities**



ETIRMS UPC Focus



- **Migrate all legacy ETIRMS functionalities**
- **Primarily support EA-6B UPC and HARM UPC**
- **Release with one ETIRMS version**
- **JMPS compatible Filter OOB : Start up as Goal (new function - nice to have), evolve to “Must have”**



MPE Process Impact



- **Will need to be part of all MPEs**
- **Possible require to maintain multiple ETIRMS configurations for different MPEs**
- **Requirements:**
 - **HMI: MPE Style Guide and standard - conflicts with ETIRMS UPC requirements- USQ-113 component's GUI must mimics the OFP's look and feel (waiver process ?)**
 - **MPE requirements conflict with ETIRMS UPC requirements: process to resolve?)**



Process Impact

- **Resource:**
 - **Additional work load require for overall life cycle support**
 - **Increase work load for tracking ETIRMS UPC requirements to support MPE SOF**
 - **Need to Involve in various Interface meetings**
- **Metrics: already in place but may require to track separately for each MPE**
- **Change Process:**
 - **Any changes requested and approved by our users and PMA will now also need approval from MPE (increase turn around time and may add risks in meeting EA-6B OFP schedule)**



EA-6B Mission Planning

Anthony Deshotel
Mission Planning Level 3





Current Processes



- **Reviews**
 - **Processes within EA-6B MP have traditionally been less formal**
 - **Gradual increase in process started with the EA-6B UPC development**
 - RRBs, PDR, CDR, DRBs, etc.
 - » Work in progress
- **User Input**
 - **Recently conducted an Aircrew System Advisory Panel (ASAP)**
 - User interaction with EA-6B MPE
 - Hosted in JMPS lab on 8-10 Jun 04
 - Summary Report is in progress
 - Defects and metrics will be made available



New Process Impact

- **Unknown if EA-6B has adequate resources to support new processes....TBD**
 - MPE focus is significantly greater
 - Need to determine effort to support MPE DRBs?
- **PMA281 will require robust CM tracking of UPCs/FWs in support of MPEs**



Question?



- **H/W to support testers**
 - **Need laptop or Desktop to support VX-30, VX-23 and VX-9**
 - Date that EA-6B testers will receive JMPS hardware?



Questions?





UPC's



- **AARGM**
- AV-8B
- CUPC
(JSOW/JDAM)
- E-2C
- EA-6B
- ETIRMS
- **F/A-18**
- **HARM**
- JSF
- **MH-60**
- SLAM-ER
- **TAMMAC**
- V-22



JMPS Process TIM

John Seybold
AARGM MP IPT Lead

John.seybold@navy.mil

17 June 2004



AARGM UPC Status

- AARGM is new, next generation HARM
 - Major expansion in capability – and MP requirements
 - AARGM will use the ARM UPC
 - ARM UPC will extend the HARM UPC
- This brief will cover AARGM-unique concerns
- AARGM MP currently planning and in requirement elic
 - Start of development effort scheduled for Sept 2004



Systems Engineering



AARGM System Engineering IPT
AARGM Interface Control Working Group
AARGM Threat Data Library Working Group

...

EA-18G A/G SOR Team

HARM UPC

Managing by MPE is important

Concerns: None



The Requirements "Challenge"

ORD and System Specifications levy high level requirements

" P_k of ...", sensor fusion and timelines

Majority of requirements derived by prime contractor

"Compute delta between current DTED and compressed DTED pre-stored in missile"

Concerns: establishing incorporating SOF into clean requirement flow and tracing



Details



- **Covered by HARM UPC**



Questions?





JMPS Process TIM

John Seybold
AARGM MP IPT Lead

John.seybold@navy.mil

17 June 2004



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Details



- **Covered by HARM UPC**



Questions?





JMPS Process TIM

Dennis Ikenoyama
HARM UPC Technical Lead

IkenoyamaDT@navair.navy.mil

17 June 2004



Agenda

- HARM UPC Processes
- Team Composition
- Systems Engineering
- Requirements
- Discrepancy Reporting
- MPE Metrics
- Test/Integration/Performance
- User's Advisory Group
- Change Management
- Logistics



HARM UPC Processes

- Development Process—ICONIX (Based on RUP)
- CDR held December 2002 attended by ARM project officer/pilot as well as VX-9 personnel (7 flight suits)
- Use Source Safe and CVS for CM
- Internal DR tracking system using FM Pro
- Participating in weekly performance working group ses



Team Composition

- Currently: 3 Developers, Team Lead, half-time tester
- At Peak: 5 Developers, Team Lead, half-time tester



Systems Engineering

DAG at Fallon
UIWG

Managing by MPE is a good idea

Concerns: None



Requirements

Initially guided by HARM MPM (TOB)
ARM Steering Committee (ASC) guides HARM UPC
Requirements.

Managing by MPE is a good idea

Concerns: short-term level of effort required for
SOF documents



Discrepancy Reporting

HARM UPC used MS Excel during beta UPC releases
HARM UPC now uses FM Pro to track DRs

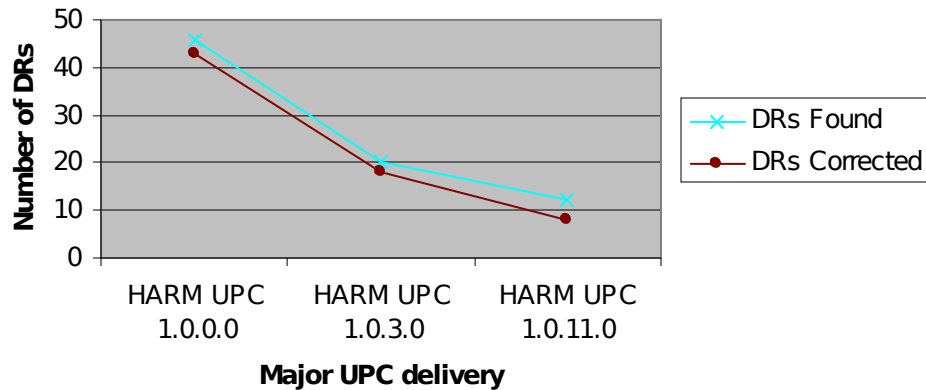
Discrepancy reporting by MPE is a good idea

Concerns: increased level of effort and increased need for communication; duplication of data

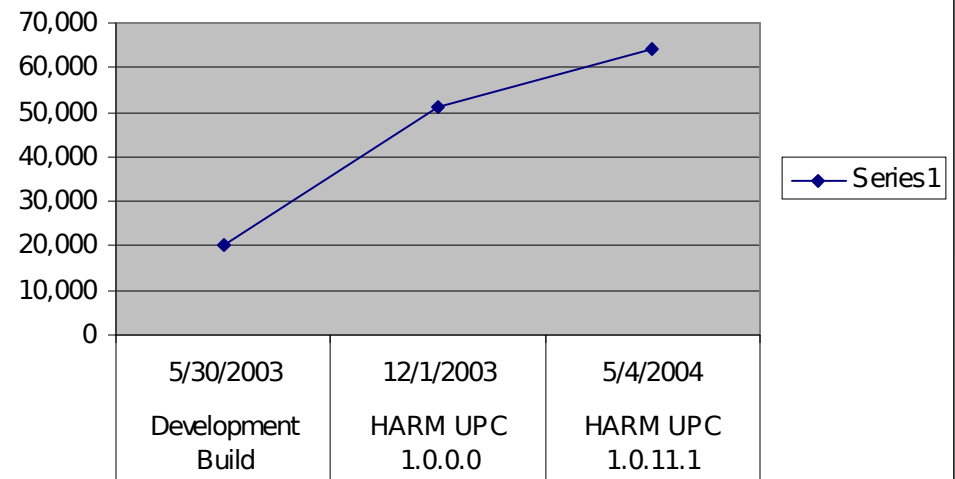


MPE Metrics

DR Discovery/Burndown



HARM UPC generates metrics from DR database





MPE Metrics

Collecting metrics by MPE is a good idea

Concerns:

Misleading metrics—doesn't include “free play”



Test/Integration/Performance

HARM UPC developers perform Unit Testing

HARM UPC tests internally on fleet-representative hardware on a standalone machine running COE

HARM UPC participates in weekly ISC

Concerns: None



User's Advisory Group

HARM UPC already employs a “UAG” called ARM Steer Committee (ASC)

Concerns:

Only one Bones

Withholding judgment until UPC Interface Integration Standards Guide published—do we really want to make it a requirement?

Competing interests—PMA 242 priorities vice PMA 281 priorities—how do we reconcile?



Change Management

Fully endorse change management process

Concerns: None



Logistics

ARM Program Office already has a “help” desk
24/7/365 War Fighter Response Center (WRC)

Support Websites:

- <http://arm.chinalake.navy.smil.mil>
- <http://wrc.chinalake.navy.smil.mil>

SME Training: HARM University

Curriculum and Schedule Info available at:
<http://www.nawcwpns.navy.mil/harm>

Concerns: None



Questions?





F/A-18 UPC Process Impacts

Joe Law (Justin Ennis)





Process Updates



- **Participating in Performance Working Group and associated weekly Integrated System Check (ISC) events in IBAR with F/A-18 UPC builds, data load device support, and testing.**
- **F/A-18 aircrew participating in User Advisory Group (UAG)**
- **Widening scope of ISC tests with scenario lead-ins prior to data loading.**
- **Increasing scenario-based testing among AWL mission planning team.**
- **Added PMA-281 DT team to weekly F/A-18 JMPS DCRB SAR review package distribution.**
- **Analyzing ORD KPP metrics in ISC on worst-case system configuration (CVIC).**
- **Analyzing memory usage statistics across UPC builds.**



Process Update Impacts

- ***Process Suggestion:*** Additional Deficiency Review Boards (DRBs) for MPEs
- ***Background:*** Current F/A-18 UPC Deficiency Review Board (DRB) Support provided by F/A-18 Team: 18E%, H2E+, H3E, 19C, SHARP, JMPS Framework, F/A-18 UPC
 - Current Time Spent Weekly - 15-20 hours
- ***Impact:*** Additional DRBs will overload team
 - **Tentative Mitigations**
 - Divide team across vertical product lines and staff DRBs with specific personnel
 - Pre-brief DRBs and send targeted personnel



Process Update Impacts



- ***Process Suggestion:*** Configuration Control Board (CCB) to centrally manage UPC content and updates
- ***Background:*** Current UPC is considered F/A-18 “Acquisition Product” and is not attached to a Software Configuration Set (SCS). After deployment F/A-18 UPC will become part of the SCS and release on SCS-determined timelines.
- ***Impact:*** SCS timelines may not sync to CCB availability/process timelines.
 - **Tentative Mitigations**
 - Limit release of non-CCB’ed builds of F/A-18 UPC until properly CCB-reviewed (leads to backing out of fixes and money spent twice?)



Process Update Impacts



- **Process Suggestion:** New guide standards for UPC HMI interfaces to framework -menus, explorer, help. New training standards for UPC's
- **Background:** F/A-18 is close to deployment (Fall 04) GUI's, HMI interfaces and training have been approved and implemented.
- **Impact:** Risk of schedule slip, to redesign GUI's and interfaces. No funding to make new GUI changes. Training has been contracted and Beta's delivered.
 - **Tentative Mitigation**
 - PMA-281 review current F/A18 MPE training materials, GUI's and interfaces and provide early assessment for F/A-18.
 - Implement new standards with successive MPE SCS builds not first deployment (H2E?, more likely 19C)



Contracts Issues



- **F/A-18 Technical Direction Letter (TDL) process supports very fast turnaround of workload changes to Boeing.**
- **Recent wording has been added to the TDL to speed the process even more and support the uncertainty the current processes pose to the development of the F/A-18 UPC. Remainder of FY04 funding has been placed on TDL.**



F/A-18 UPC Concerns



- **Micro-EDT was smaller course correction than BI#2, but still pointed clearly to the fact that aircrew feedback into current system must be increased (probably should be informal and easy as possible).**
- **Issues that existed prior to BI#2 that still exist:**
 - **FY04 hardware *VENDOR* needed (standalone spec is insufficient due to JSLIC processes)**
 - **Aircraft integration testing must complete (lack of 19C backup plan is strong medicine for this - creates natural push of AWL integration test apparatus towards JMPS)**



Backups





Technical Status



- **All BI#2 SARs fixed in H2E-1.0.3 (5 May 04) and H2E-1.0.4 (2 June 04) releases.**
- **Two (2) Must-fix SARs resulting from Micro-EDT on 10 June:**
 - **Waypoints/Sequences interface crashes when attempting to import an aircraft route that has points in it that have been copied/pasted in the tabular editor. (OMF)**
 - **Logic for DCS CAS Friendly to Target distance is buggy. It is possible to get perpetual errors for a range that is too far from Friendly to Target, but if the location is copied and pasted from Friendly to Target fields then the system gets into a mode where no matter how far the Friendly is from the Target no error message is given.**
- **Micro-EDT located twelve (12) other issues which have been handed to PMA-281 DT team for system engineering guidance.**



F/A-18 MPE Timelines

H2E OT "Onramp" Schedule

ID	Task Name	Mar '04	Apr '04					May '04					Jun '04					Jul '04					Aug '04					Sep '04					Oct '04					Nov '04			
			28	4	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14					
1	JMPS Framework Development																																								
7	J-SLIC 0.6D Development																																								
9	MPE Development																																								
153	No JDAM Contingency OTRR																																								
157	JDAM Contingency OTRR																																								

19C SCS JMPS Support Schedule

ID	Task Name	Qtr 2, 2004			Qtr 3, 2004			Qtr 4, 2004			Qtr 1,
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
7	J-SLIC 0.6D Development										
1	JMPS Framework Development										
9	MPE Development										
137	Pre-Pre-OTRR										
138	Pre-OTRR										
139	OTRR										

H2E Onramp is **high risk**. 19C plan allows for software modification and integration test needed by entire JMPS system.

19C has **NO TAMPS BACKUP.**



TAMMAC UPC

Alfredo Fajardo
NAVAIR Weapons Division
(805) 989-5226
alfredo.fajardo@navy.mil

JMPS MPE TIM
15 - 17 June 2004





Current Process

- Boeing verifies DR fixes and performs some regression testing
- NAVAIR Point Mugu is lead V&V
 - Tests and integrates with FW and MPE
 - Performs FQT
 - Identifies STRs from our testing
 - Receives TUPC-related STRs from tests conducted by FA-18 MPE
 - Reports STRs to PMA-209 and Boeing for prioritization and disposition
 - FQT'ed build is released to JMPS CM



Current Status

- Final 1.1.0.6 delivered by Boeing
 - All five “Must-Fix” DRs have been fixed
 - Regression testing in progress
- All remaining open DRs are deferred
 - Total of 26 open DRs (5 Pri 3)
 - No \$ to fix
- Defect rate of 0.125/kSLOC
 - Based on 5 open Pri 3 DRs and 40 kSLOC



- TAMMAC UPC is encouraged by new MPE-based processes
- Gives TAMMAC UPC more visibility and access to users, testers, etc.



- Is there an overarching Systems Engineering process model that is driving these processes?
- MPE DRBs
 - TAMMAC UPC team is small
 - Could be a member of multiple MPEs
 - How to efficiently use TAMMAC UPC resources?



- UAG/HMI
 - MPE developer should also be involved at an earlier stage in the Fix Process Cycle
 - Will the UPC Interface Integration Standards Guide address level(s) of training, expertise, and/or experience of users that the HMI should be targeted to?
 - Additional cost to implement standards



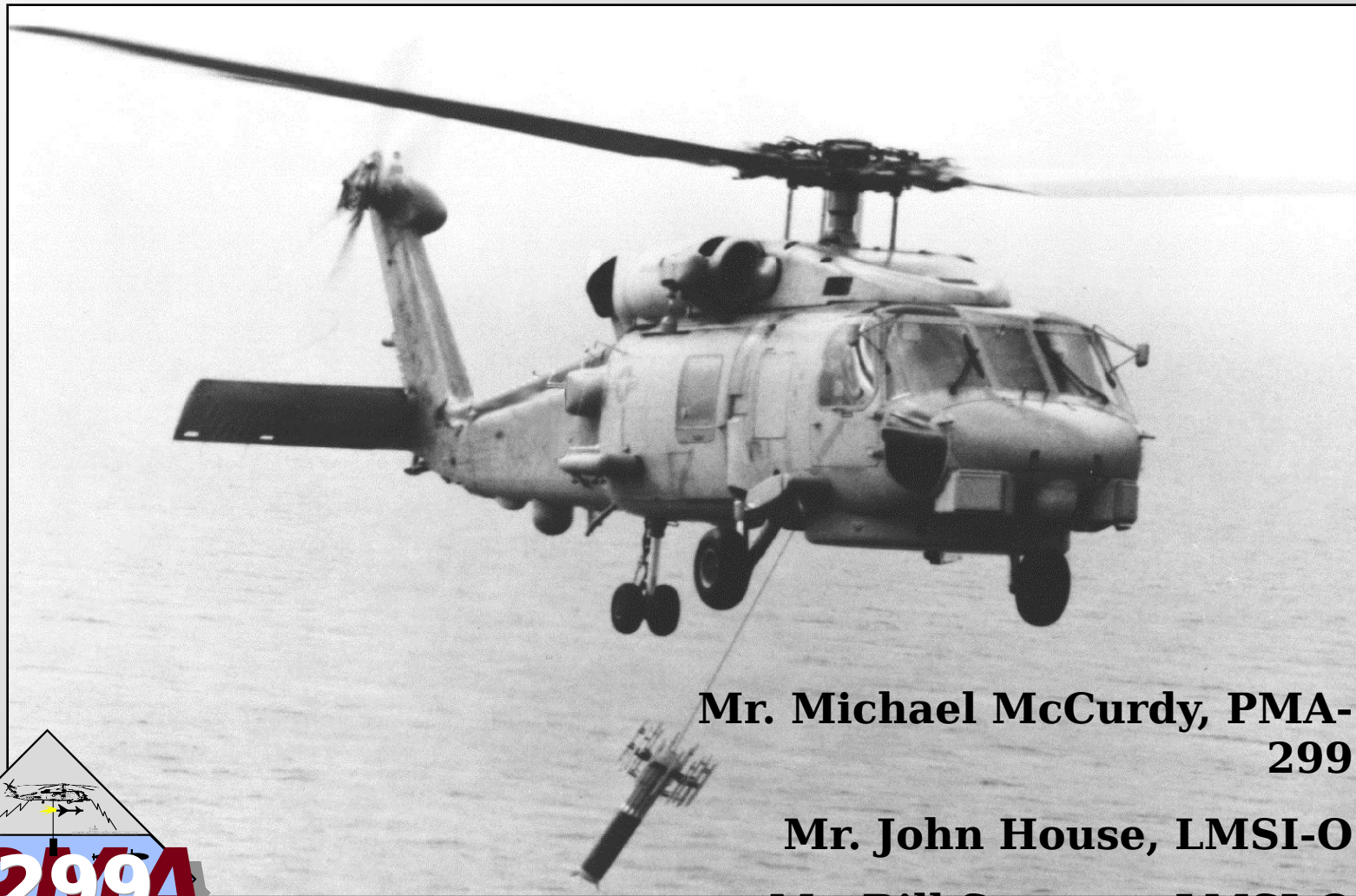
- Change Management
 - How will this process handle a new requirement like the new TUFF II NAND cards?
 - **Affects multiple MPEs, possibly including already fielded MPEs**
 - **Not tied into a particular MPE release**
- Logistics
 - Knowledgebase containing helpful info to aid fleet users (similar to the JMPS UPC Developer knowledgebase or a bulletin board/forum)
 - Funding issues to provide additional training to multiple sites or task SPAWAR to provide training



Questions?



Common Helo Advanced Mission Planning System (CHAMPS)

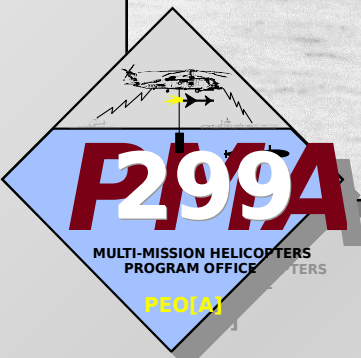


Mr. Michael McCurdy, PMA-299

Mr. John House, LMSI-O

Mr. Bill Stermer, LMSI-O

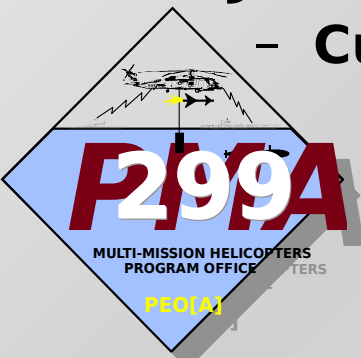
****Not all UPC's are
created equal**





MH-60 UPC Start

- **Current MPS includes PFPS 3.3.1 Rel 2 Beta 13 (Navy Only) release.**
- **Alpha Negotiations Completed TODAY**
- **Block I contractual start date Oct. 2004**
- **Phase 1 Perform Functional Analysis to identify, processes, requirements, schedule, resources, and potential risks as an UPC.**
- **Identify all “common helo” requirements and functionality that is not supported by JMPS Framework**
 - **Currently unfunded by PMA-281**





MH-60 UPC Start

- **Identify existing usable common components that supports MH60 from the JMPS framework**
- **Phase II/III Development and Test**
 - **Need to complete by FY-07**
 - » PFPS supportability issues





MH-60 UPC Migration Issues

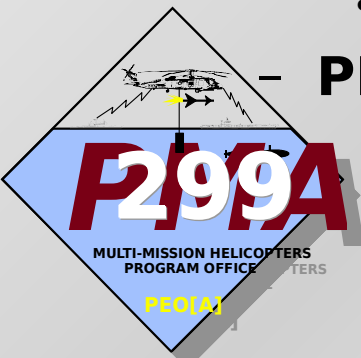


- Integrating Multiple Mission Planning variants
- Classified/Unclassified planning capability
- Data transfer mechanism
- Acoustic Sensors
 - ✓ ALFS
 - ✓ Sonobuoys
- Torpedo/Weapon support
 - ✓ Presets
 - ✓ Runtimes
 - ✓ Splash points
- Automated Naval message generation (Purples)
- Post Flight Insitu SVP measurement



MH-60 Migration Issues cont'd...

- **Common Helo mission planning tools**
- **Platforms affected - All Rotary Platforms**
 - **AC Unique Helo Symbolology**
 - **Dropzone and Landing Zone Administration (DZ and LZ Admin)**
 - **Helicopter Operations Planning (HOP's)**
 - **Hover performance calculations**
 - **Helo FPMs**
 - **Multi-mode flight planning**
 - Enroute planning w/ Ingress/Egress points
 - Fly-To-Points to prosecute operational area
 - **PMA - Post Mission Analysis**





MH-60 Unique Features



- **Checklist Oriented Planning Tabs**
- **Mission threads and functions variations - USW, ASuW, AMCM, Armed Helo, CSAR, Utility**
- **PCMCIA card Binary File formatting and download**
- **Use of aircraft symbology replacing Falconview route symbols**
- **Database designed equipment/stores dependencies reduces upgrade complexity/cost**





MH-60 Unique Features cont'd



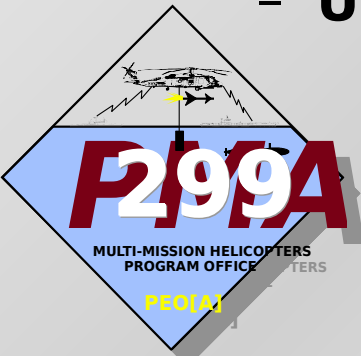
- **COTS Database management using Access Forms**
- **Security features**
- **Individual crewmember user profiles**
- **Aircraft configuration management**
- **Single CD Install**
 - **Provides CM**
 - **Simplifies Complex Installation**
 - Currently installing 12 individual Software Components(UPC's)
- **Automatic PFPS Configuration**



Specific Warfare Planning Capabilities



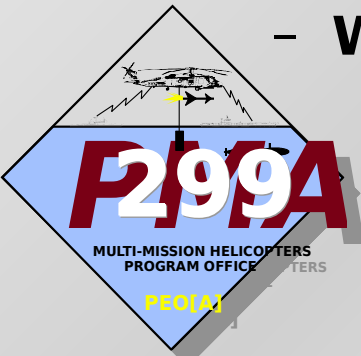
- **JMPS does not have USW planning tools**
 - **Platforms affected**
 - MH-60R, P3C, MMA, TSC, CV-TSC, FFG, CG
 - **Acoustic Sensor Prediction models**
 - **Environmental databases (DBDBD)**
 - **TOI databases**
 - **Sonobuoy and Dipper support**
 - Pattern generation
 - Symbology
 - **USW Map support (DNC and Bottom Contours)**





Specific Warfare Planning Capabilities Cont'd...

- **JMPS does not have Anti-Mine Countermeasure (AMCM) planning tools**
 - MEDAL plan import capability (ship connectivity)
 - Multiple search area planning
 - Multiple flight planning
- **Or Combat Search and Rescue support**
 - Pattern Generation
- **Or ARMED Helo support**
 - Weapons

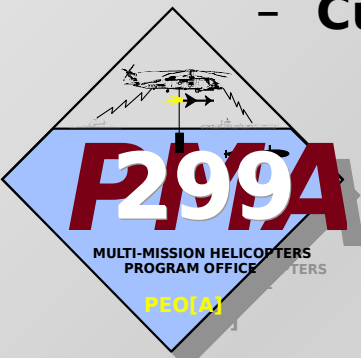




PMA-299 Programmatic Issues



- **Block I JMPS migration SOW and Tasking**
 - JMPS Boiler Plate taskers that must be met in the SOW
 - Fixed budget across FY-05 thru FY-07
 - Extended scope X .5 based on new JMPS processes
- **MH-60R/S DT/OT schedules**
- **No current “Common Helo” JMPS funding**
 - Framework
 - Helo Common Capability
 - Warfare specific environment
- **No previous insight to JMPS mandated processes**
 - Current Block I contract in real-time negotiations





PMA-299 Programmatic Issues



- **JMPS Logistic concerns:**
 - **DII COE Licensing/Certifications**
 - **Training**
 - **Documentation**
 - **Fielding**
 - **Release updates/upgrades**
 - **IT Support**
- **MH60 SSA Baseline Management (CM)**
 - **MPS (PFPS) fleet sustainment until CHAMPS is fully fielded**



PMA-299 Programmatic Conclusion



- **Perceived MH60 JMPS Migration RISK:**
 - Cost -HIGH
 - Schedule -HIGH
 - Performance-HIGH
- **Way Forward**
 - **Requires** direct partnership **and** buy-in **from PMA-281**
 - Shared risk mitigation responsibility for
 - » Cost
 - » Schedule
 - » Performance
 - 281-299-LMSI-NAWCWD, Agreed upon migration development and test plan